

# DENON

Hi-Fi FM Stereo / Tuner

## SERVICE MANUAL

### MODEL TU-500

### SOLID STATE FM STEREO TUNER

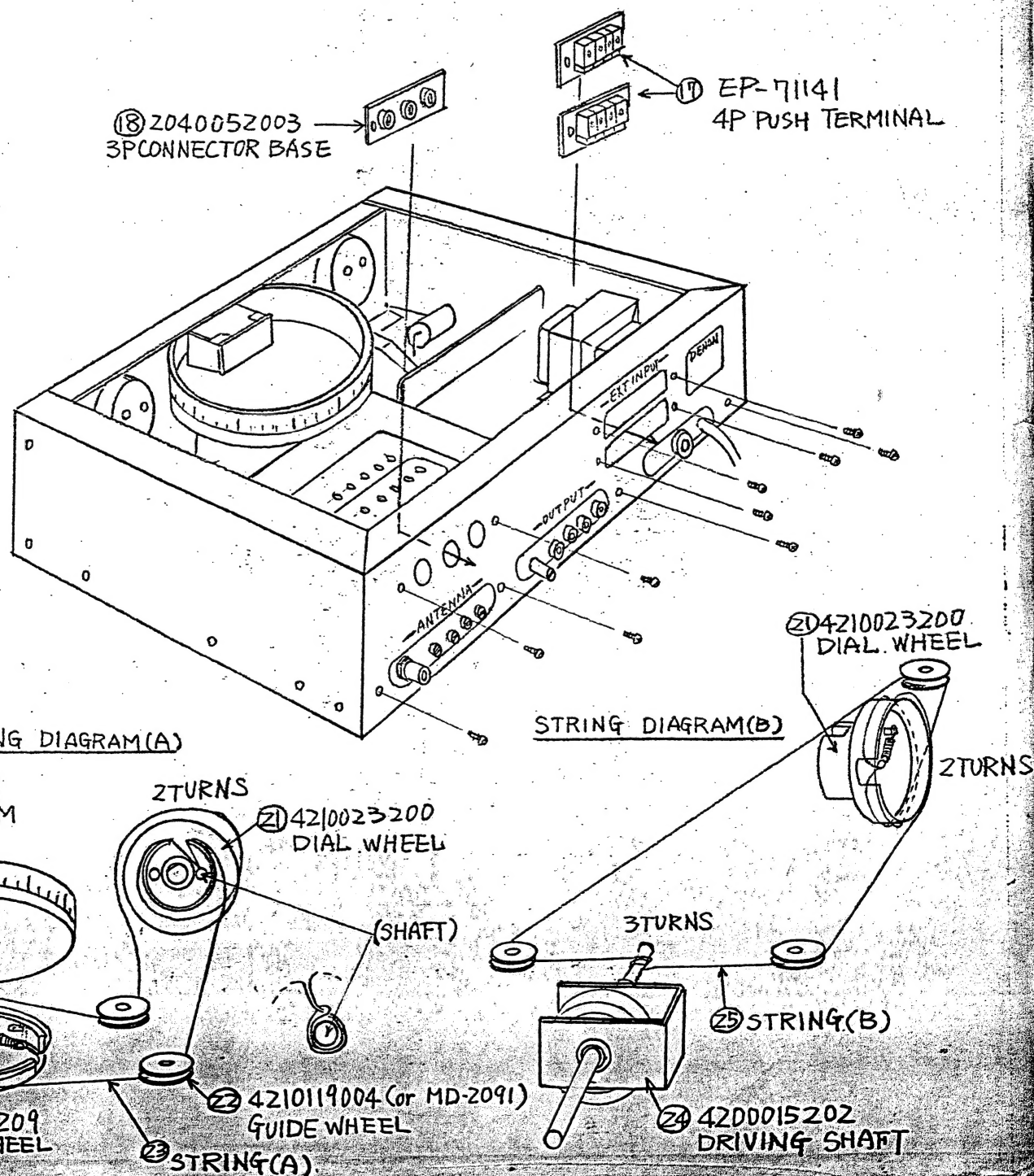


NIPPON COLUMBIA CO., LTD

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ILL. NO	PARTS NO	PARTS NAME	ILL. NO	PARTS NO	PARTS NAME
①	1010156215	TOP CABINET	⑭	SC-1143H1	4X5 SET SCREW
②	1440103304	FRONT PANEL	⑮	1040013108	FOOT
③	1050041209	BOTTOM COVER	⑯	SC-1162	SPECIAL SCREW
④	1020033108	BACK COVER	⑰	EP-71141	4P PUSH TERMINAL
⑤	4110028402	FRONT CHASSIS	⑱	2040052003	3P CONNECTOR BASE
⑥	MD-516TH	LEVER KNOB (A)	⑲	4520021109	DIAL DRUM
⑦	MD-5221	LEVER KNOB (B)	⑳	4210024209	DRUM WHEEL
⑧	1120028107	KNOB	㉑	4210023200	DIAL WHEEL
⑨	1120036005	KNOB	㉒	4210119004	GUIDE WHEEL
⑩	1120034104	TUNING KNOB	㉓	—	STRING (A)
⑪	1140025009	KNOB RING	㉔	4200015202	DRIVING SHAFT
⑫	SC-1143H2	4X8 SET SCREW	㉕	—	STRING (B)
⑬	DL-7284J	FUNCTION KNOB			



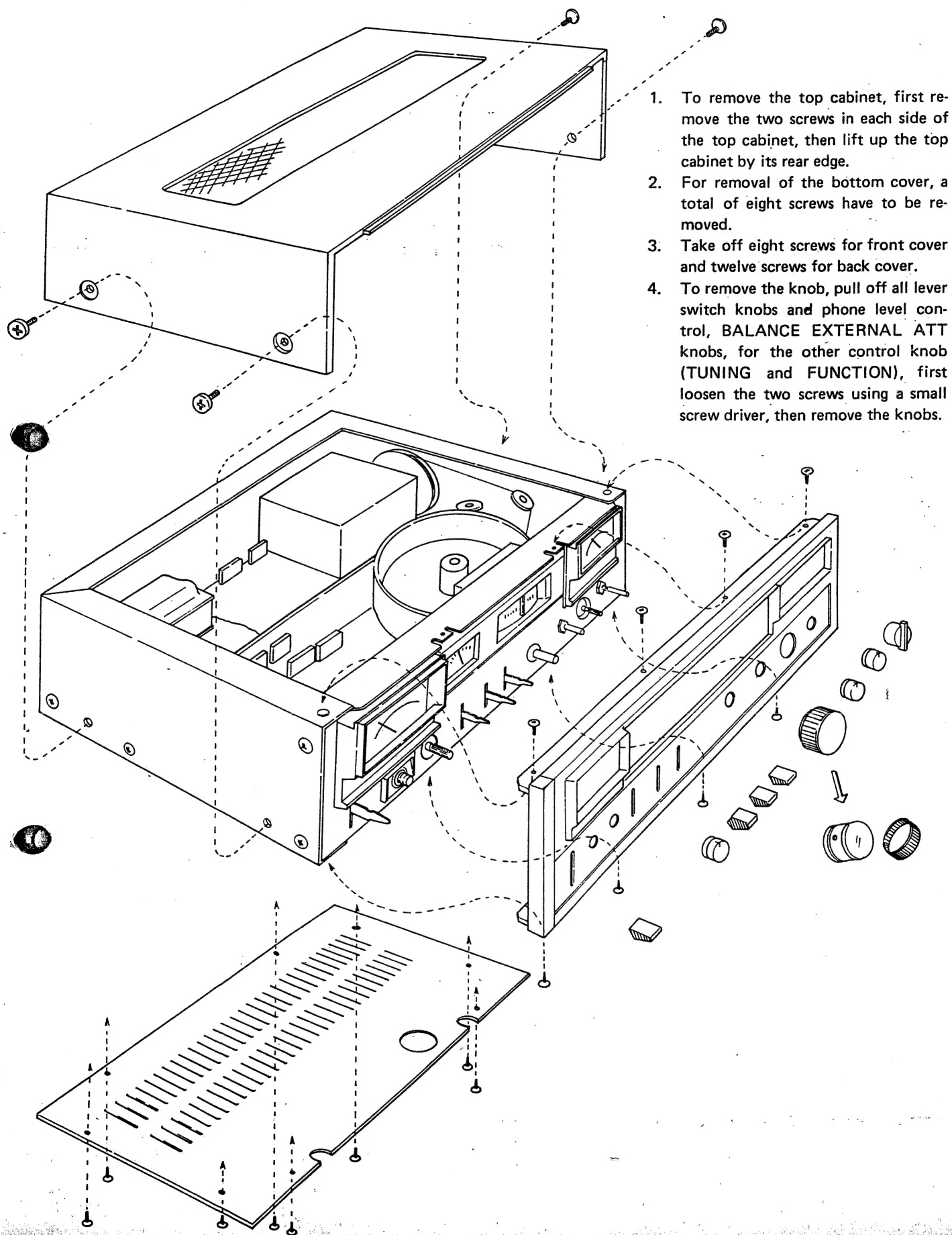
## SPECIFICATIONS

<b>CIRCUIT SYSTEM:</b>	Super heterodyne
<b>Tuning Range:</b>	87.4 ~ 108MHz
<b>Intermediate Frequency:</b>	10.7MHz
<b>Usable Sensitivity:</b>	1.7 $\mu$ V (IHF)
<b>Signal to Noise Ratio:</b>	75dB
<b>AM Suppression:</b>	60dB
<b>Capture Ratio:</b>	1.0dB
<b>Effective Selectivity:</b>	80dB
<b>Image Rejection:</b>	110dB
<b>IF Rejection:</b>	110dB
<b>Spurious Response:</b>	110dB
<b>Frequency Response:</b>	20Hz ~ 15kHz +0.2dB -1.5dB
<b>Total Harmonic Distortion:</b>	(MONO) 1kHz 0.2%, 50Hz ~ 10kHz 0.3%
	(STEREO) 1kHz 0.2%, 50Hz ~ 5kHz 0.3%
<b>FM Stereo Separation:</b>	1kHz 45dB 100Hz ~ 10kHz 40dB
<b>Carrier Leak (19kHz &amp; 38kHz):</b>	65dB
<b>OUTPUT VOLTAGE</b>	
<b>Fixed Output (FIXED):</b>	1V (100% modulation)
<b>Output Impedance:</b>	4.7k $\Omega$
<b>Variable Output (VARIABLE):</b>	0 ~ 1.5V
<b>Output Impedance:</b>	200 $\Omega$
<b>Headphones output (Rated voltage):</b>	10mV (8 $\Omega$ LOAD)
<b>LEVEL METERS</b>	
<b>Indication Error:</b>	$\pm 0.2$ dB (EXT. INPUT -20 ~ +30dB) 1kHz
<b>Frequency Response:</b>	20Hz ~ 15kHz $\pm 0.5$ dB
<b>CONNECTORS TERMINALS:</b>	Antenna (300 $\Omega$ , 75 $\Omega$ terminals & 75 $\Omega$ coaxial connector)
	Multi-path Detection
	Fixed Output (FIXED)
	Variable Output (VARIABLE)
	Level Meter Inputs
	Headphones
<b>OPERATION KNOBS:</b>	Power Switch
	Function (STEREO ONLY, AUTO, MONO)
	Balance (Null Balance)
	Level Meter External Input Attenuator
	Tuning knob
	Muting
	Hi. Blend
	Meter Selector (EXTERNAL, LEVEL, SIGNAL)
	Headphones Level Control)
<b>POWER REQUIREMENT:</b>	130V/220V/240V, 50Hz/60Hz (Internal switching)
<b>POWER CONSUMPTION:</b>	20W
<b>DIMENSIONS:</b>	430W x 140H x 350D (mm)
<b>WEIGHT:</b>	9kg
<b>SUPPLIED PARTS:</b>	One Connecting Cable (50cm)
	One Coaxial Connector
	Two Speaker Cables (50 strand) (50cm)

These contents are subject to alteration without prior notification.

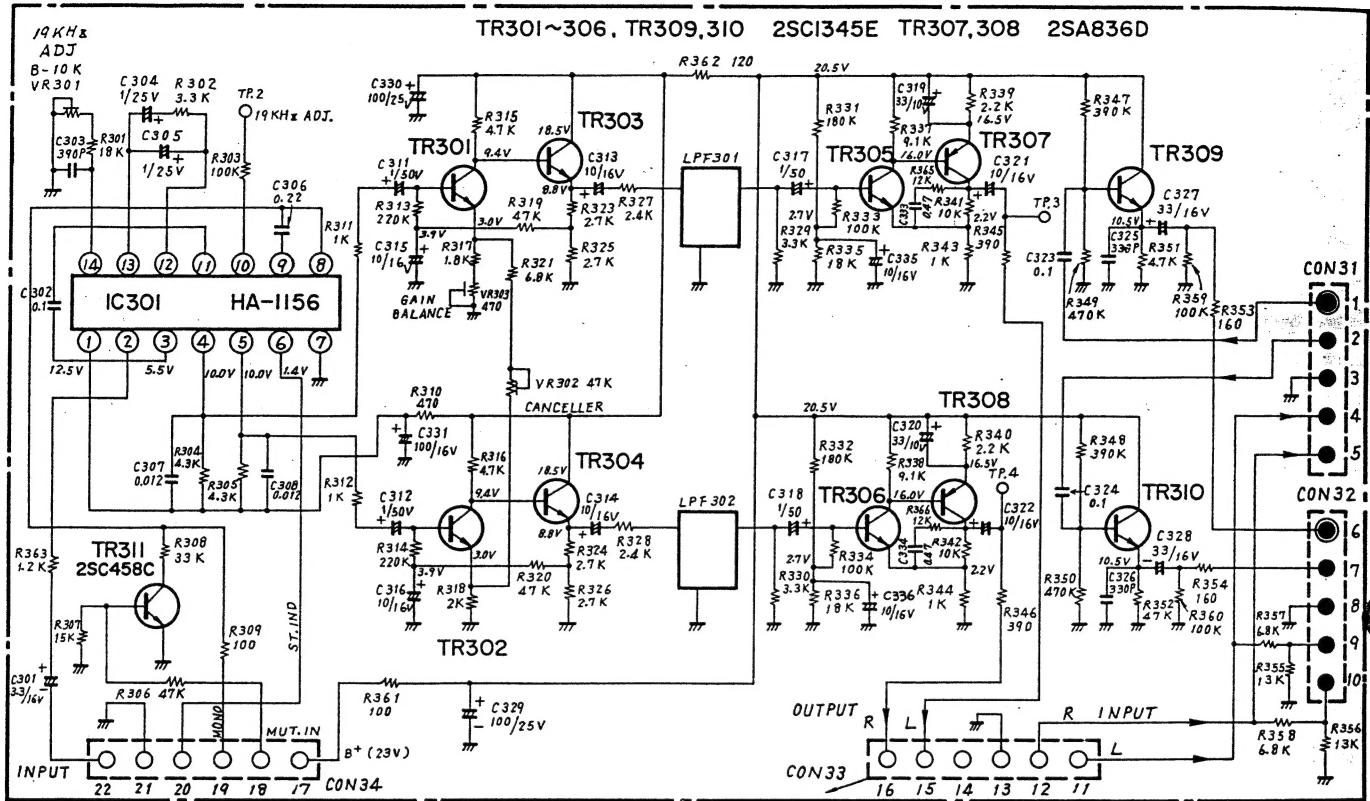


# DISASSEMBLY INSTRUCTIONS

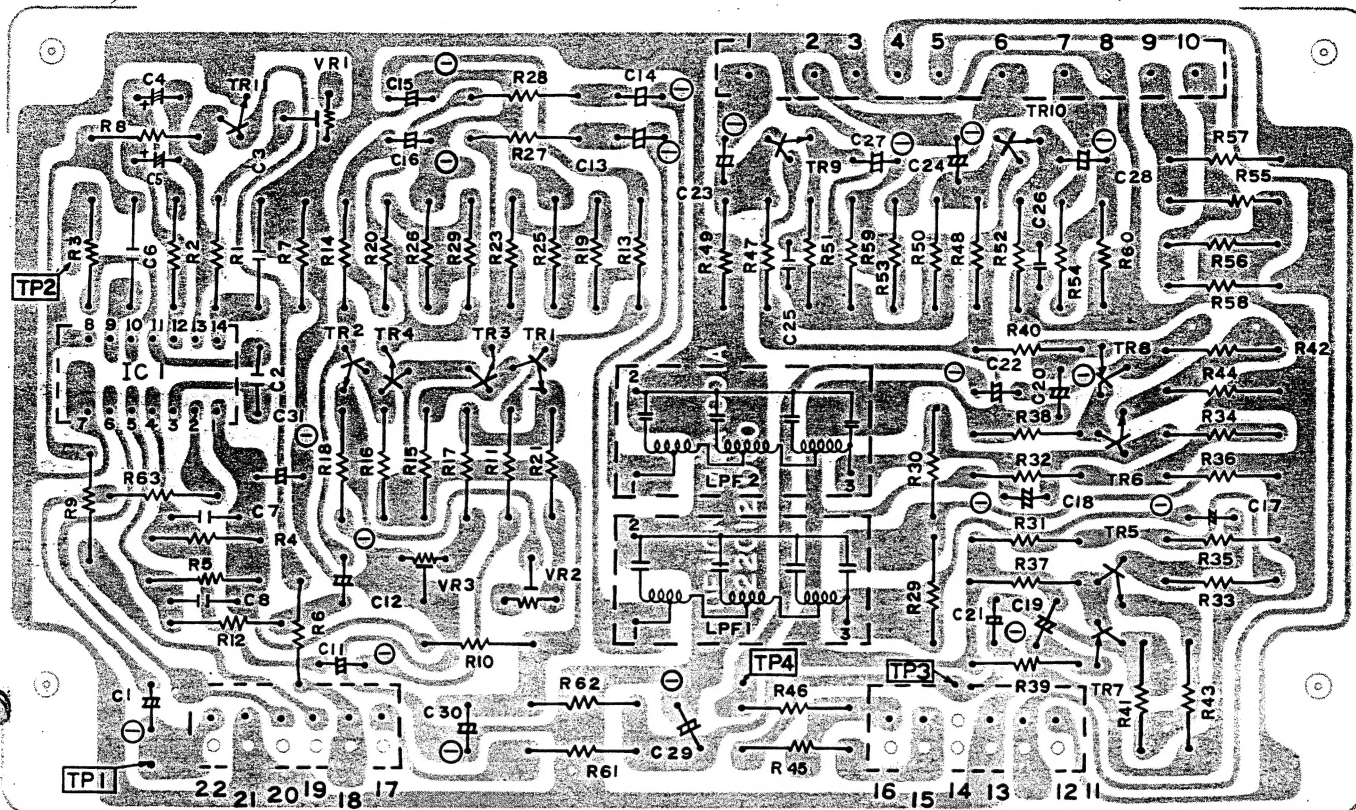


## PRINTED CIRCUIT BOARD AND CHASSIS, CABINET PARTS LIST

MUA-001A FM MPX &amp; AUDIO AMP UNIT



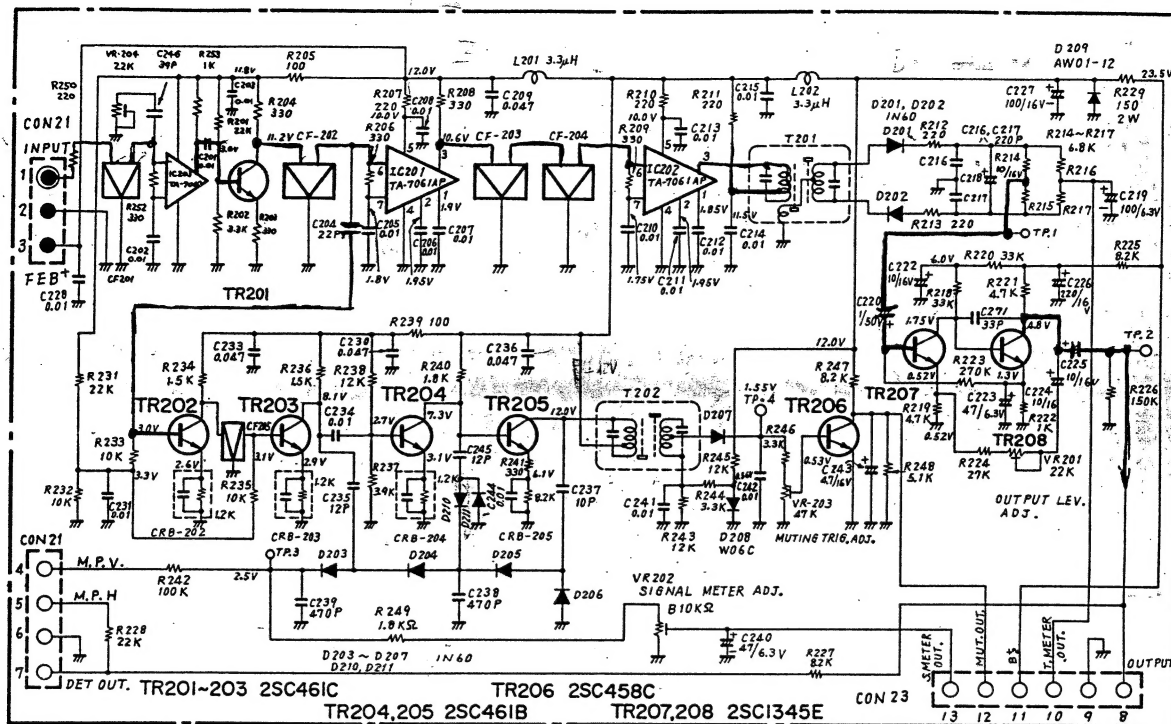
Ref. No.	Part No.	Part Name	Descriptions			
C1	2544023017	CE04W1C3R3=F	3.3μF,	16V		ELECTROLYTIC CAPACITOR
C2	2551130045	CQ93M1H104JF	0.1μF,	±5%,	50V	PLASTIC FILM CAPACITOR
C3	2556015000	CQ08S1H391J	0.00039μF,	±5%,	50V	PLASTIC FILM CAPACITOR
C4,5	2541020000	CS45ELE010M	1μF,	±20%,	25V	SOLID TANTALUM CAPACITOR
C6	2551130087	CQ93M1H224JF	0.22μF,	±5%,	50V	PLASTIC FILM CAPACITOR
C7,8	2544070005	CQ92P2A123F	0.012μF,		200V	PLASTIC FILM CAPACITOR
C11,12,17, 18,21,22	2544044012	CE04W1H010=F	1μF,		50V	ELECTROLYTIC CAPACITOR
C13,14,15, 16	2544015012	CE04W1C100=F	10μF,		16V	ELECTROLYTIC CAPACITOR
C19,20	2544008016	CE04W1A330=F	33μF,		10V	ELECTROLYTIC CAPACITOR
C23,24	2545014012	CA92F1E0R1MF	0.1μF,	25V,	±20%	PLASTIC FILM CAPACITOR
C25,26	2533639014	CC45SL1H331JF	330pF,	±5%,	50V	CERAMIC FILM CAPACITOR
C27,28	2544016011	CE04W1C330=	33μF,		16V	ELECTROLYTIC CAPACITOR
C29,30	2544028009	CE04W1E101=	100μF,		25V	ELECTROLYTIC CAPACITOR
C31	2544018006	CE04W1C101=	100μF,		16V	ELECTROLYTIC CAPACITOR
C33,34	2541027003	CS45E1VR47M	0.47μF,	35V,	±20%	SOLID TANTALUM CAPACITOR
C35,36	2544015009	CE04W1C100=	10μF,		16V	ELECTROLYTIC CAPACITOR
R1,35,36	2410344011	RD14B2E183JF	1/4W,	18kΩ,	±5%	CARBON FILM RESISTOR
R2,29,30	2410326013	RD14B2E332JF	1/4W,	3.3kΩ,	±5%	CARBON FILM RESISTOR
R3,33,34, 59,60	2410362019	RD14B2E104JF	1/4W,	100kΩ,	±5%	CARBON FILM RESISTOR
R4,5	2410329010	RD14B2E432JF	1/4W,	4.3kΩ,	±5%	CARBON FILM RESISTOR
R6,19,20	2410354014	RD14B2E473JF	1/4W,	47kΩ,	±5%	CARBON FILM RESISTOR
R7	2410342013	RD14B2E153JF	1/4W,	15kΩ,	±5%	CARBON FILM RESISTOR
R8	2410350018	RD14B2E333JF	1/4W,	33kΩ,	±5%	CARBON FILM RESISTOR
R9,61	2410290013	RD14B2E101JF	1/4W,	100Ω,	±5%	CARBON FILM RESISTOR
R10	2410306017	RD14B2E471JF	1/4W,	470Ω,	±5%	CARBON FILM RESISTOR
R11,12,43, 44	2410314012	RD14B2E102JF	1/4W,	1kΩ,	±5%	CARBON FILM RESISTOR
R13,14	2410370014	RD14B2E224JF	1/4W,	220kΩ,	±5%	CARBON FILM RESISTOR
R15,16,51, 52	2410330012	RD14B2E472JF	1/4W,	4.7kΩ,	±5%	CARBON FILM RESISTOR



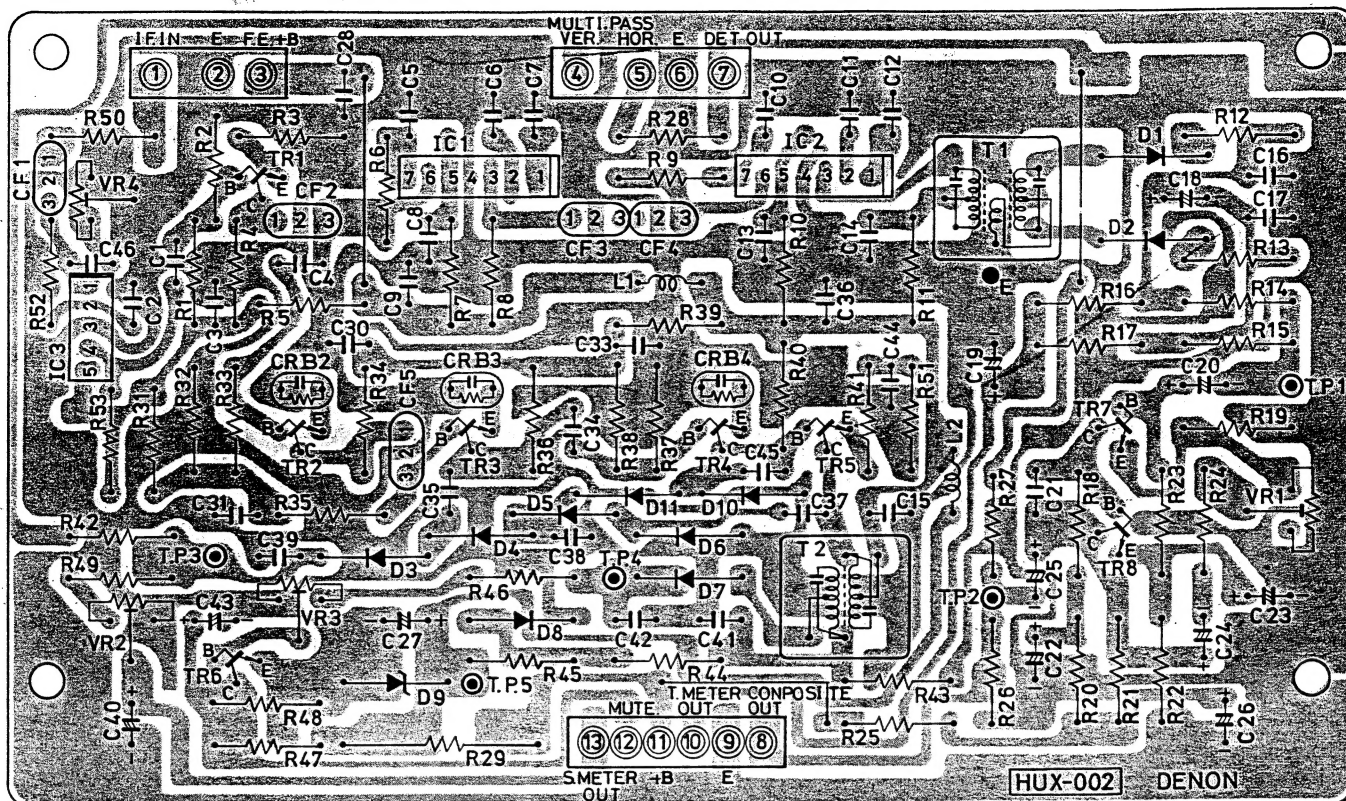
Ref. No.	Part No.	Part Name	Descriptions			
R17	2410320019	RD14B2E182JF	1/4W,	1.8kΩ,	±5%	CARBON FILM RESISTOR
R18	2410321018	RD14B2E202JF	1/4W,	2kΩ,	±5%	CARBON FILM RESISTOR
R21,57,58	2410334018	RD14B2E682JF	1/4W,	6.8kΩ,	±5%	CARBON FILM RESISTOR
R23,24,25,26	2410324015	RD14B2E272JF	1/4W,	2.7kΩ,	±5%	CARBON FILM RESISTOR
R27,28	2410323016	RD14B2E242JF	1/4W,	2.4kΩ,	±5%	CARBON FILM RESISTOR
R31,32	2410368013	RD14B2E184JF	1/4W,	180kΩ,	±5%	CARBON FILM RESISTOR
R37,38	2410337015	RD14B2E912JF	1/4W,	9.1kΩ,	±5%	CARBON FILM RESISTOR
R39,40	2410322017	RD14B2E222JF	1/4W,	2.2kΩ,	±5%	CARBON FILM RESISTOR
R41,42	2410338014	RD14B2E103JF	1/4W,	10kΩ,	±5%	CARBON FILM RESISTOR
R45,46	2410304019	RD14B2E391JF	1/4W,	390Ω,	±5%	CARBON FILM RESISTOR
R47,48	2410376018	RD14B2E294JF	1/4W,	390kΩ,	±5%	CARBON FILM RESISTOR
R49,50	2410378016	RD14B2E474JF	1/4W,	170kΩ,	±5%	CARBON FILM RESISTOR
R53,54	2410295018	RD14B2E161JF	1/4W,	160Ω,	±5%	CARBON FILM RESISTOR
R55,56	2410341014	RD14B2E133JF	1/4W,	13kΩ,	±5%	CARBON FILM RESISTOR
R62	2410292011	RD14B2E121JF	1/4W,	120Ω,	±5%	CARBON FILM RESISTOR
R63	2410316010	RD14B2E122JF	1/4W,	1.2kΩ,	±5%	CARBON FILM RESISTOR
R65,66	2410340002	RD14B2E123JF	1/4W,	12kΩ,	±5%	CARBON FILM RESISTOR
VR1	EP-5462H13	SOLID VOLUME	10kΩ	VARIABLE RESISTOR		
VR2	EP-5462H17	SOLID VOLUME	47kΩ	VARIABLE RESISTOR		
VR3	EP-5462H5	SOLID VOLUME	470Ω	VARIABLE RESISTOR		
TR1,2,3,4,5,6,9,10	2730116013	2SC1345E	TRANSISTOR			
TR7,8	2710063005	2SA836D	TRANSISTOR			
TR11	2730021043	2SC458C	TRANSISTOR			
IC1	2630043011	HA-1156(R)	INTEGRATED CIRCUIT – MPX			
	2320013005	LOW PASS FILTER				
	2038023002	5P CONNECTOR(B) PLUG				
	2040023003	6P CONNECTOR(A) PLUG				
	EP-5667H3	TERMINAL				
	2220121000	PRINTED CIRCUIT BOARD				



## HUX-002A FM IF AMP UNIT



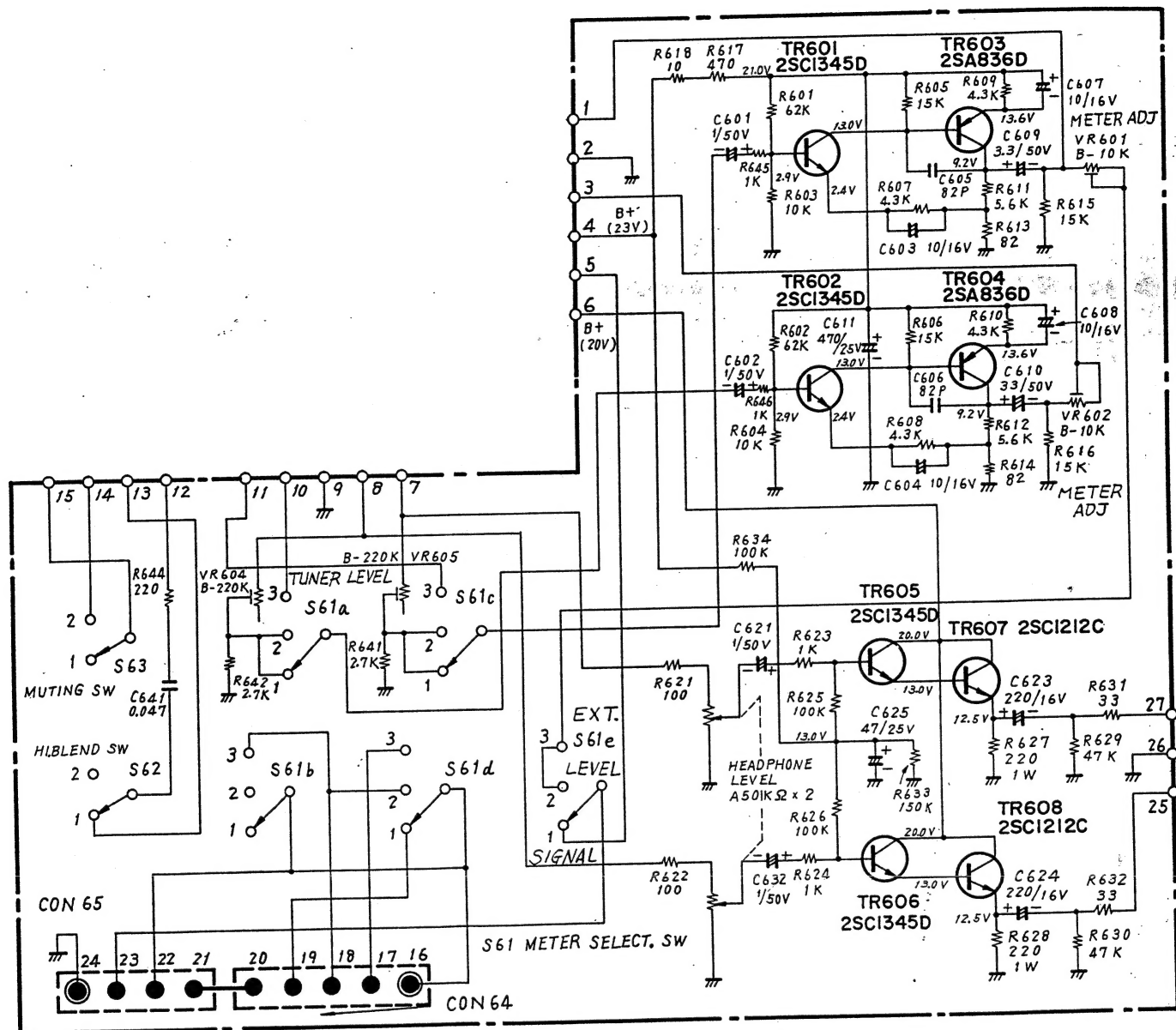
Ref. No.	Part No.	Part Name	Descriptions		
C1,2,3,5,6,7,8,10,11,12,13,14,15,28,31,34,41,44	2531024003	CK45F1H103Z	0.01μF,	50V,	CERAMIC CAPACITOR
C4	2533649017	CC45SL1H220KF	22pF,	±10%, 50V,	CERAMIC CAPACITOR
C9,30,33,36	2531026001	CK45F1H473Z	0.047μF,	50V	CERAMIC CAPACITOR
C16,17	2533661011	CC45SL1H221KF	220pF,	±10%, 50V,	CERAMIC CAPACITOR
C18	2544024016	CE04W1E4R7=F	4.7μF,	25V	ELECTROLYTIC CAPACITOR
C19	2544003011	CE04W1C101=F	10μF,	16V	ELECTROLYTIC CAPACITOR
C20,43	2544044012	CE04W1H010=F	1μF,	50V	ELECTROLYTIC CAPACITOR
C21	2533651018	CC45SL1H330KF	33pF,	±10%, 50V	CERAMIC CAPACITOR
C22,24,25	2544015012	CE04W1C100=F	100μF,	16V	ELECTROLYTIC CAPACITOR
C23,40	2544002012	CE04W0J470=F	47μF,	6.3V	ELECTROLYTIC CAPACITOR
C26	2544019018	CE04W1C221=F	220μF,	16V	ELECTROLYTIC CAPACITOR
C27	2544018019	CE04W1C101=F	100μF,	16V	ELECTROLYTIC CAPACITOR
C35	2533646010	CC45SL1H120KF	12pF,	±10%, 50V	CERAMIC CAPACITOR
C37	2533603011	CC45SL1H100DF	10pF,	±0.5pF, 50V	CERAMIC CAPACITOR
C38,39	2533665017	CC45SL1H471KF	470pF,	±10%, 50V	CERAMIC CAPACITOR
C45	2533646007	CC45SL1H120K	12pF,	±10%, 50V	CERAMIC CAPACITOR
C46	2533652017	CC45SL1H390KF	39pF,	±10%, 50V	CERAMIC CAPACITOR
R1,28,31	2410346019	RD14B2E223JF	1/4W,	22kΩ, ±5%	CARBON FILM RESISTOR
R2,44,46	2410326013	RD14B2E332JF	1/4W,	3.3kΩ, ±5%	CARBON FILM RESISTOR
R3,46,8,9,41,52	2410302011	RD14B2E331JF	1/4W,	330Ω, ±5%	CARBON FILM RESISTOR
R5,39	2410290013	RD14B2E101JF	1/4W,	100Ω, ±5%	CARBON FILM RESISTOR
R7,10,11,12,13,50	2410298015	RD14B2E221JF	1/4W,	220Ω, ±5%	CARBON FILM RESISTOR
R14,15,16,17	2410334018	RD14B2E682JF	1/4W,	6.8kΩ, ±5%	CARBON FILM RESISTOR
R18,20	2410350018	RD14B2E333JF	1/4W,	33kΩ, ±5%	CARBON FILM RESISTOR
R19,21	2410330012	RD14B2E472JF	1/4W,	4.7kΩ, ±5%	CARBON FILM RESISTOR
R23	2410372012	RD14B2E274JF	1/4W,	270kΩ, ±5%	CARBON FILM RESISTOR
R24	2410348017	RD14B2E273JF	1/4W,	27kΩ, ±5%	CARBON FILM RESISTOR
R22,53	2410314012	RD14B2E102JF	1/4W,	1kΩ, ±5%	CARBON FILM RESISTOR
R25,51	2410336003	RD14B2E822J	1/4W,	8.2kΩ, ±5%	CARBON FILM RESISTOR
R26	2410366015	RD14B2E154JF	1/4W,	150kΩ, ±5%	CARBON FILM RESISTOR
R27,47	2410336016	RD14B2E822JF	1/4W,	8.2kΩ, ±5%	CARBON FILM RESISTOR



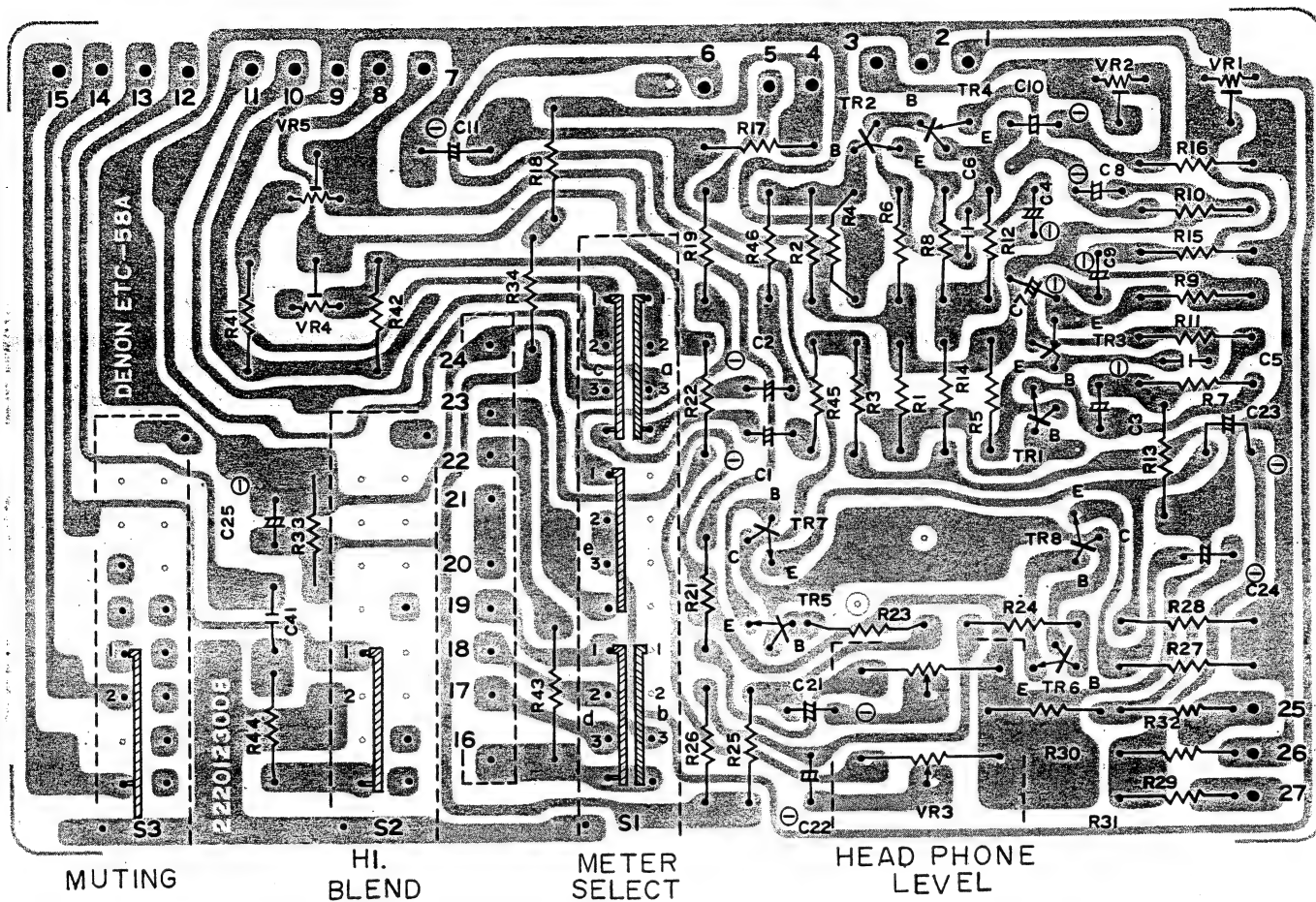
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R29	2440087005	RS14B3D121J	2W,	120Ω,	±5%	METAL OXIDE FILM RESISTOR
R32,33,35	2410338014	RD14B2E103JF	1/4W,	10kΩ,	±5%	CARBON FILM RESISTOR
R34,36	2410318018	RD14B2E152JF	1/4W,	1.5kΩ,	±5%	CARBON FILM RESISTOR
R37	2410328011	RD14B2E392JF	1/4W,	3.9kΩ,	±5%	CARBON FILM RESISTOR
R38,43,45	2410340015	RD14B2E123JF	1/4W,	12kΩ,	±5%	CARBON FILM RESISTOR
R40,49	2410320019	RD14B2E182JF	1/4W,	1.8kΩ,	±5%	CARBON FILM RESISTOR
R42	2410362019	RD14B2E104JF	1/4W,	100kΩ,	±5%	CARBON FILM RESISTOR
R48	2410331011	RD14B2E512JF	1/4W,	5.1kΩ,	±5%	CARBON FILM RESISTOR
VR1	EP-5462H15	SOLID VOLUME	B-22kΩ	VARIABLE RESISTOR		
VR2	EP-5462H13	SOLID VOLUME	B-10kΩ	VARIABLE RESISTOR		
VR3	EP-5462H17	SOLID VOLUME	B-47kΩ	VARIABLE RESISTOR		
VR4	EP-5462H9	SOLID VOLUME	B-2.2kΩ	VARIABLE RESISTOR		
TR1,2,3	2730025023	2SC461C	TRANSISTOR			
TR4,5	2730025010	2SC461B	TRANSISTOR			
TR6	2730021030	2SC458C	TRANSISTOR			
TR7,8	2730116013	2SC1345E	TRANSISTOR			
IC1,2	2630019029	TA7061AP	INTEGRATED CIRCUIT			
IC3	2630031007	TA7060P	INTEGRATED CIRCUIT			
D1,2,3,4,5, 6,7,10,11	2760002029	1N60TV	DIODE			
D8	2760158025	W06C	RECTIFIER			
D9	2760065008	AW01-12	ZENNER DIODE			
CF1,2,3,4,5	2610006007	CERAMIC FILTER	10.7MHz CERAMIC FILTER			
CRB2,3,4	EP-5118H4	CR BLOCK				
L1,2	RT-07352	INDUCTOR	3.3μH INDUCTOR			
T1	2312001009	RATIO TRANS ASSY				
T2	2312002105	FM IFT ASSY				
	2034025004	3P CONNECTOR(B) PLUG				
	2036026001	4P CONNECTOR(B) PLUG				
	2040023003	6P CONNECTOR(A) PLUG				
	EP-5667H1	TERMINAL				
	2220120205	PRINTED CIRCUIT BOARD				



## ETC-58A CONTROL UNIT (1)

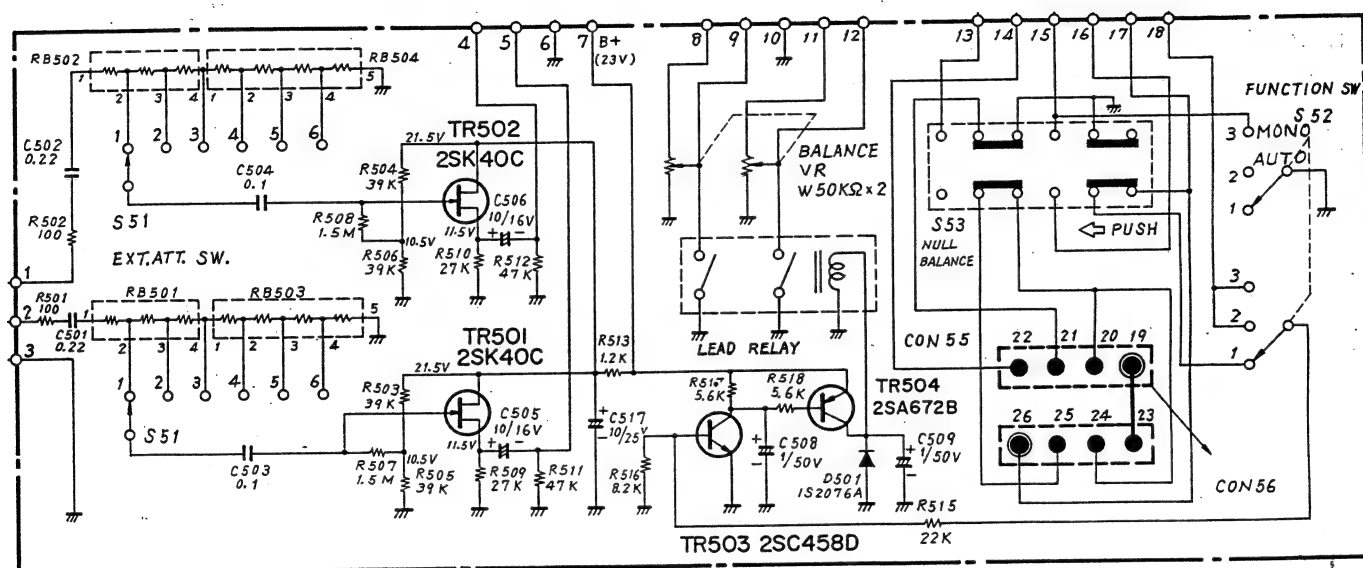


Ref. No.	Part No.	Part Name	Descriptions			
C1,2,21,22	2544044012	CE04W1H010=F	1 $\mu$ F,	50V,		ELECTROLYTIC CAPACITOR
C3,4,7,8	2544025015	CE04W1E100=F	10 $\mu$ F,	25V,		ELECTROLYTIC CAPACITOR
C5,6	2533625105	CC45SL1H820JF	82pF,	$\pm$ 5%,	50V	CERAMIC CAPACITOR
C9,10	2544045011	CE04W1H3R3=F	3.3 $\mu$ F,	50V		ELECTROLYTIC CAPACITOR
C11	25444031009	CE04W1E471=	470 $\mu$ F,	25V		ELECTROLYTIC CAPACITOR
C23,24	2544019005	CE04W1C221=	220 $\mu$ F,	16V		ELECTROLYTIC CAPACITOR
C25	2544027013	CE04W1E470=F	47 $\mu$ F,	25V		ELECTROLYTIC CAPACITOR
C41	2551130003	CQ93M1H473JF	0.047 $\mu$ F,	$\pm$ 5%,		PLASTIC FILM CAPACITOR
R1,2	2410357011	RD14B2E623JF	1/4W,	62k $\Omega$ ,	$\pm$ 5%	CARBON FILM RESISTOR
R3,4	2410338014	RD14B2E103JF	1/4W,	10k $\Omega$ ,	$\pm$ 5%	CARBON FILM RESISTOR
R5,6	2410342012	RD14B2E153JF	1/4W,	15k $\Omega$ ,	$\pm$ 5%	CARBON FILM RESISTOR
R7,8,9,10	2410329010	RD14B2E432JF	1/4W,	4.3k $\Omega$ ,	$\pm$ 5%	CARBON FILM RESISTOR
R11,12	2410332010	RD14B2E562JF	1/4W,	5.6k $\Omega$ ,	$\pm$ 5%	CARBON FILM RESISTOR
R13,14	2410288012	RD14B2E820JF	1/4W,	82 $\Omega$ ,	$\pm$ 5%	CARBON FILM RESISTOR
R17	2410306017	RD14B2E471JF	1/4W,	4.7k $\Omega$ ,	$\pm$ 5%	CARBON FILM RESISTOR
R18	2410266018	RD14B2E100JF	1/4W,	10 $\Omega$ ,	$\pm$ 5%	CARBON FILM RESISTOR



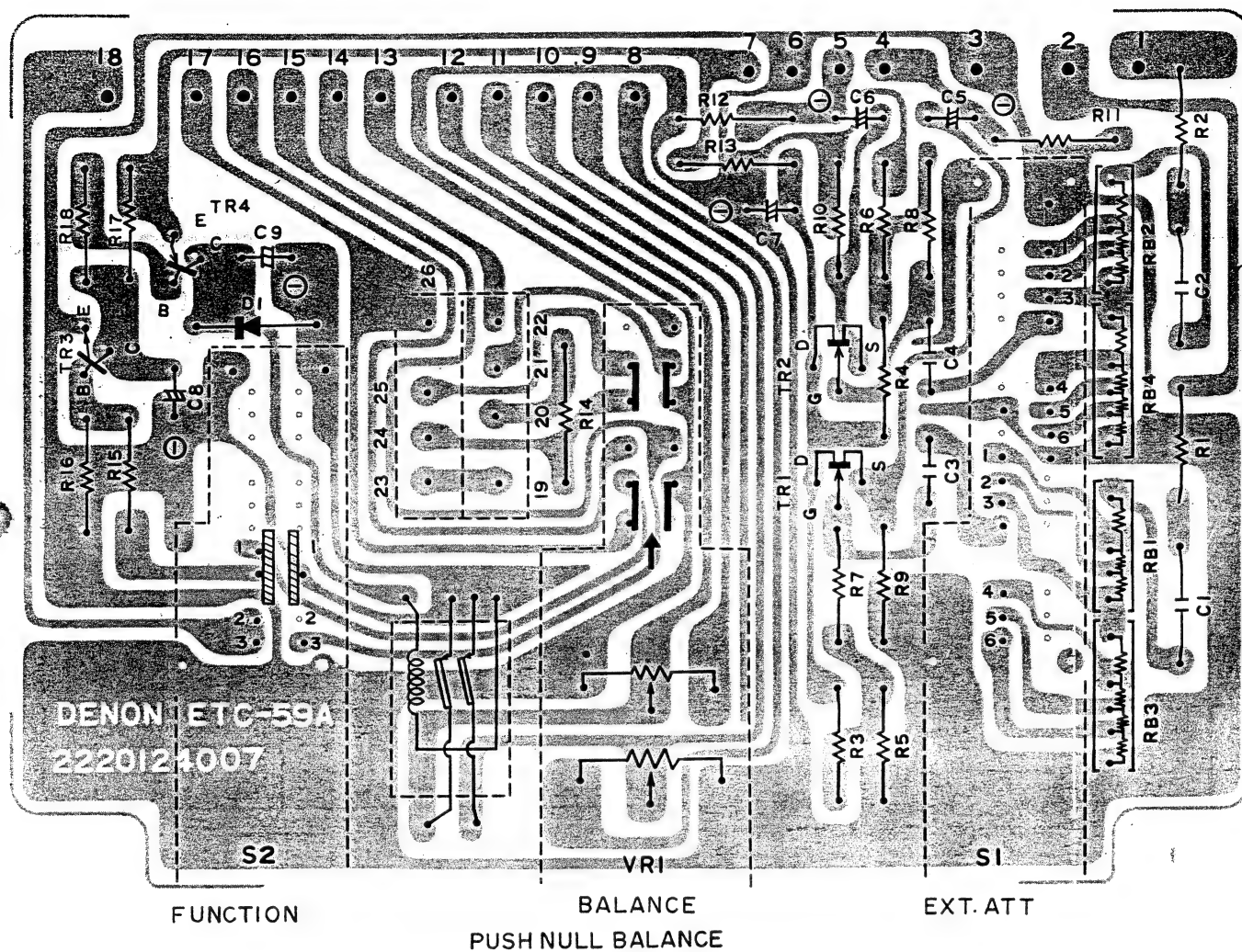
Ref. No.	Part No.	Part Name	Descriptions			
R19,21,22	2410290013	RD14B2E101JF	1/4W,	100Ω,	±5%	CARBON FILM RESISTOR
R23,24,45,46	2410314012	RD14B2E102JF	1/4W,	1kΩ,	±5%	CARBON FILM RESISTOR
R25,26,34	2410362019	RD14B2E104JF	1/4W,	100kΩ,	±5%	CARBON FILM RESISTOR
R27,28	2440033004	RS14B3A221JNB	1W,	220Ω,	±5%	METAL OXIDE FILM RESISTOR
R29,30	2410354014	RD14B2E473JF	1/4W,	47kΩ,	±5%	CARBON FILM RESISTOR
R31,32	2410278019	RD14B2E330JF	1/4W,	33Ω,	±5%	CARBON FILM RESISTOR
R33	2410366015	RD14B2E154JF	1/4W,	150kΩ,	±5%	CARBON FILM RESISTOR
R41,42	2410324015	RD14B2E272JF	1/4W,	2.7kΩ,	±5%	CARBON FILM RESISTOR
R44	2410298015	RD14B2E221JF	1/4W,	220Ω,	±5%	CARBON FILM RESISTOR
	EP-5462H13	SOLID VOLUME	10kΩ	VARIABLE RESISTOR		
	EP-5462H21	SOLID VOLUME	220kΩ	VARIABLE RESISTOR		
	2110051002	V1820P30KA503	A-50kΩ	VARIABLE RESISTOR		
TR1,2,5,6	2730116013	2SC1345E	TRANSISTOR			
TR3,4	2710063005	2SA836D	TRANSISTOR			
TR7,8	2730110006	2SC1212C	TRANSISTOR			
	2124024009	LEVER SWITCH	FOR METER SELECT			
	2120010017	LEVER SWITCH	FOR MUTING, HI BLEND			
	2036026001	4P CONNECTOR(B) PLUG				
	2036028009	4P CONNECTOR CORD				
	2038025005	5P CONNECTOR CORD				
	2040026000	6P CONNECTOR CORD				
	2038023002	5P CONNECTOR(B) PLUG				
	4170030100	RADIATOR				
	2220123105	PRINT CIRCUIT BOARD	HEAT SINK FOR TR7,8			

## ETC-59A CONTROL UNIT (2)



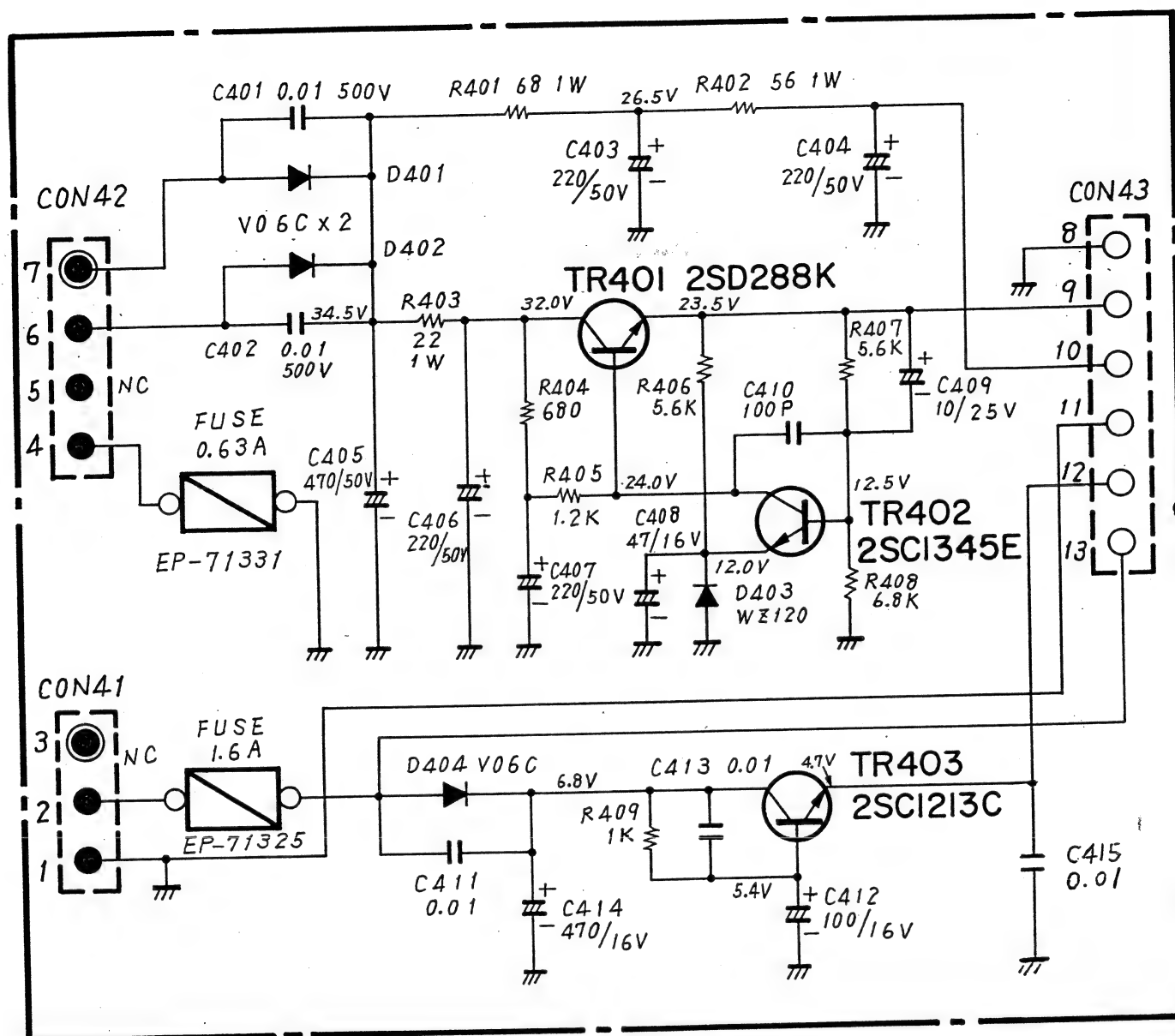
Ref. No.	Part No.	Part Name	Descriptions			
C1,2	2551088016	CQ93M1H224KF	0.22 $\mu$ F,	$\pm 10\%$ ,	50V	PLASTIC FILM CAPACITOR
C3,4	2551025011	CQ92M1H104KF	0.1 $\mu$ F,	$\pm 10\%$ ,	50V	PLASTIC FILM CAPACITOR
C5,6	2544015012	CE04W1C100=F	10 $\mu$ F,		16V	ELECTROLYTIC CAPACITOR
C7	2544025015	CE04W1E100=F	10 $\mu$ F,		25V	ELECTROLYTIC CAPACITOR
C8,9	2544044012	CE04W1H010=F	1 $\mu$ F,		50V	ELECTROLYTIC CAPACITOR
R1,2	2410290013	RD14B2E101JF	1/4W,	100 $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR
R3,4,5,6	2410352016	RD14B2E393JF	1/4W,	39k $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR
R7,8	2420193016	RC05G2E155KF	1/4W,	1.5M $\Omega$ ,	$\pm 10\%$	CARBON COMPOSITE RESISTOR
R9,10	2410348017	RD14B2E273JF	1/4W,	27k $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR
R11,12	2410354014	RD14B2E473JF	1/4W,	47k $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR
R13	2410316010	RD14W2E122JF	1/4W,	1.2k $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR
R15	2410346019	RD14B2E223JF	1/4W,	22k $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR
R16	2410336016	RD14B2E822JF	1/4W,	8.2k $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR
R17,18	2410332010	RD14B2E562JF	1/4W,	5.6k $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR
	2110052001	V2420P25RW503	50k $\Omega$	FOR NULL BALANCE		





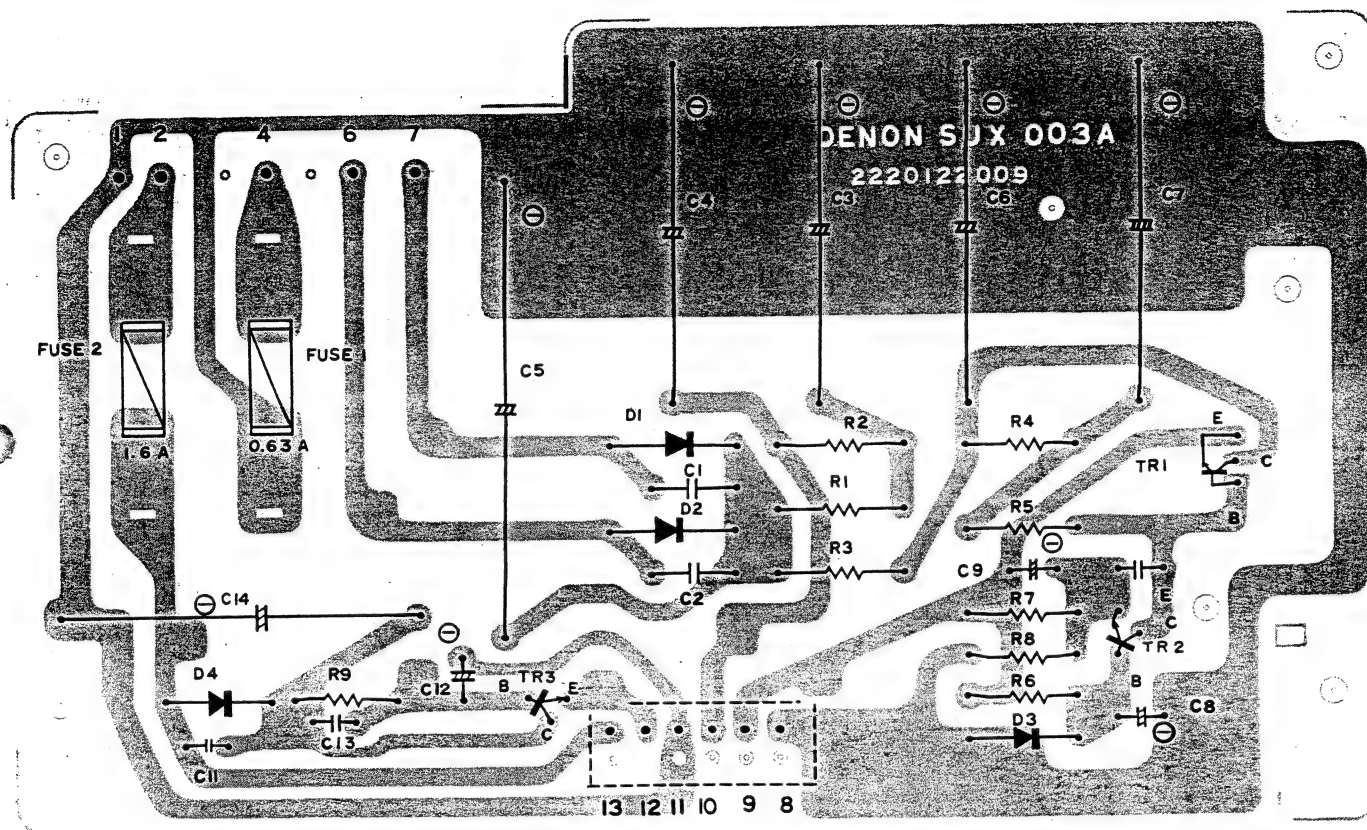
Ref. No.	Part No.	Part Name	Descriptions
TR1,2	2750007021	2SK40C	TRANSISTOR (FET)
TR3	2730021043	2SC458D	TRANSISTOR
TR4	2710039013	2SA672B	TRANSISTOR
D1	2760049011	1S2076A	ZENNER DIODE
RB1,2	2462001001	RK923=2B —	RESISTOR BLOCK
RB3,4	2462002000	RK924=2B —	RESISTOR BLOCK
	2120025002	ROTARY SWITCH	FOR FUNCTION
	2120026001	ROTARY SWITCH	FOR EXT. INPUT LEVEL ATT.
	2140015005	REED RELAY	
	2036032008	RECEPTACLE CORD (4P)	FOR EXT. INPUT CORD
	2036026001	4P CONNECTOR (B) PLUG	
	2036028009	4P CONNECTOR CORD	
	2038025000	5P CONNECTOR CORD	
	2040026000	6P CONNECTOR CORD	
	2220124007	PRINTED CIRCUIT BOARD	

## SUX-003A POWER SOURCE UNIT



Ref. No.	Part No.	Part Name	Descriptions			
C1,2	2531053003	CK45E2H103P	0.01 $\mu$ F,	500V		CERAMIC CAPACITOR
C3,4,6,7	2542056002	CE02W1H221=	220 $\mu$ F,	50V		ELECTROLYTIC CAPACITOR
C5	2542058000	CE02W1H471=	470 $\mu$ F,	50V		ELECTROLYTIC CAPACITOR
C8	2544017010	CE04W1C470=F	47 $\mu$ F,	16V		ELECTROLYTIC CAPACITOR
C9	2544025015	CE04W1F100=F	10 $\mu$ F,	31.5V		ELECTROLYTIC CAPACITOR
C10	2533657012	CC45SL1H101KF	100pF,	$\pm 10\%$ ,	50V	CERAMIC CAPACITOR
C11,13,15	2531024003	CK45F1H103P	0.01 $\mu$ F,	50V		CERAMIC CAPACITOR
C12	2544018006	CE04W1C101=	100 $\mu$ F,	16V		ELECTROLYTIC CAPACITOR
C14	2542024005	CE02W1C471=	470 $\mu$ F,	16V		ELECTROLYTIC CAPACITOR
R1	2440027007	RS14B3A680JNB	1W,	68 $\Omega$ ,	$\pm 5\%$	METAL OXIDE FILM RESISTOR
R2	2440026008	RS14B3A560JNB	1W,	560 $\Omega$ ,	$\pm 5\%$	METAL OXIDE FILM RESISTOR
R3	2440021003	RS14B3A220JNB	1W,	22 $\Omega$ ,	$\pm 5\%$	METAL OXIDE FILM RESISTOR
R4	2410310016	RD14B2E681JF	1/4W,	680 $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR





Ref. No.	Part No.	Part Name	Descriptions			
R5	2410316010	RD14B2E122JF	1/4W,	1.2k $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR
R6,7	2410332010	RD14B2E562JF	1/4W,	5.6k $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR
R8	2410334018	RD14B2E682JF	1/4W,	6.8k $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR
R9	2410314012	RD14B2E102JF	1/4W,	1k $\Omega$ ,	$\pm 5\%$	CARBON FILM RESISTOR
TR1	2740028010	2SD228K	TRANSISTOR			
TR2	2730116013	2SC1345E	TRANSISTOR			
TR3	2730111021	2SC1213C	TRANSISTOR			
D1,2,4	2760057016	V06C	RECTIFIER			
D3	2760126002	WZ120	ZENNER DIODE			
F1	EP-71331	FUSE (0.63A)	FOR "B" FUSE			
F2	EP-71325	FUSE (1.6A)	FOR "LAMP" FUSE			
	EP-5870	FUSE HOLDER				
	4170025005	RADIATOR	HEAT SINK FOR TR1			
	2220122106	PRINTED CIRCUIT BOARD				



## GE-0002-1 CHASSIS &amp; CABINET GROUP

Ref. No.	Part No.	Part Name	Descriptions
C1	2518001010	CP05C==AC223MC	0.022 $\mu$ F, $\pm$ 20%, 450VAC OIL CAPACITOR
R2	2440011000	RS14B3A3R3JNB	1W, 3.3 $\Omega$ , $\pm$ 5% METAL OXIDE RESISTOR
	4110027102	DIAL CHASSIS	
	MD-2091	GUIDE WHEEL	
	MD-0131J	GUIDE WHEEL	
	SC-1161	TAPPING SCREW	
	4120087006	F.E. BRACKET	
	4200015202	DRIVING SHAFT ASSY	
	4120088005	G.W. BRACKET ASSY	
	4210023103	DIAL WHEEL	
	4410108006	DIAL BRACKET	
	4220020002	DIAL SHAFT	
	WA-0733	SPACER	
	4210024102	DRUM WHEEL	
	WA-0728	E-RING	
	4756013004	6 NUT	
	S—2680	TENSION SPRING	
		STRING	0.7mm NYLON STRING
	4520021109	DIAL DRUM	
	4110028305	FRONT CHASSIS ASSY	
	1430029207	DIAL MASK	
	1430031101	INDICATOR PLATE	
	1430032103	INDICATOR LENS	ORANGE COLOR FILTER
	1430032113	INDICATOR LENS	GREEN COLOR FILTER
	1430032126	INDICATOR LENS	RED COLOR FILTER
	4140040007	SHIELD PLATE	
	4520014307	POINTER	
	3930010002	LAMP ASSY	POINTER LAMP ASSY 6.3V 75mA
	1220027008	POINTER FILTER	BLUE COLLAR FILTER
	4110030322	MAIN CHASSIS ASSY	
	MD-5271	P.C.B. SUPPORT	
	4120094002	TRANS BRACKET	FOR POWER TRANS
	4120095001	VOLUME BRACKET	
	1020033001	BACK COVER	
	4770052009	FIX SCREW	
	2124057005	LEVER SWITCH	FOR POWER SWITCH
	2150006101	VU METER ASSY $\Delta R$ $\Delta L$ $\Delta O$ $\Delta R$	
	2150006145	VU METER ASSY $\Delta R$ $\Delta L$ $\Delta O$ $\Delta R$	
	4510006202	LAMP BRACKET	
	1430033206	FILTER	BLUE COLOR FILTER
	2220127004	PRINTED CIRCUIT BOARD	DIAL DRUM & TUNING METER ILLUMINATION
	EP-60992	LAMP	8V 200mA
	2160009004	FM FRONT AND ASSY	
	2220126102	PRINTED CIRCUIT BOARD	FOR LAMP BOARD
	3930008001	LAMP	8V 100mA
	2150007003	TUNING METER ASSY	
	2020012005	FUSE HOLDER	
	2061015003	FUSE (0.5A)	FOR AC LINE FUSE
	EP-5941	HEAD PHONE JACK	
	2050019201	4P TERMINAL	FOR ANTENNA TERMINAL
	EP-71141	4P PUSH TERMINAL	FOR EXT. INPUT TERMINAL
	2050029000	6P TERMINAL	FOR VOLTAGE CHANGEOVER TERMINAL
	EP-4772	CORD HOLDER	
	2090007011	WIRE ASSY (B)	FOR VOLTAGE CHANGEOVER
	2006034007	AC CORD WITH PLUG	
	MD-2982H	CORD BUSH	
	E—9843H	FIXING PLATE	
	2110050003	V2420R20SA503	A-50k $\Omega$ LEVEL ADJUST
	2300012000	POWER TRANS ASSY	
	SC-1050H	NUT	FOR POWER TRANS
	2032055005	COAXIAL CONNECTOR	75 $\Omega$ ANTENNA CONNECTOR
	2310017008	BALUN TRANS	
	2220125006	PRINTED CIRCUIT BOARD	FOR CONNECTING BOARD
	EP-6760	3P CONNECTOR BASE	
	EP-5787	4P CONNECTING BASE	

Ref. No.	Part No.	Part Name	Descriptions
	2034026003	3P CONNECTOR (C) PLUG	FRONT END TUNING METER MULTI PATH TERMINAL LAMP TO ETC-59A VU METER TO ETC-59A VU METER TO ETC-58A LAMP BOARD LAMP BOARD TO ETC-58A LEVEL ADJUST VOLUME OUTPUT TERMINAL 75Ω ANTENNA PLUG
	2036027000	4P CONNECTOR (C) PLUG	
	2038024001	5P CONNECTOR (C) PLUG	
	2040025001	6P CONNECTOR (C) PLUG	
	2040022004	6P CONNECTOR (A) PLUG	
	2034027015	3P CONNECTOR CORD	
	2034027002	3P CONNECTOR CORD	
	2036028054	4P CONNECTOR CORD	
	2036028041	4P CONNECTOR CORD	
	2036028038	4P CONNECTOR CORD	
	2036028025	4P CONNECTOR CORD	
	2038025042	5P CONNECTOR CORD	
	2038025013	5P CONNECTOR CORD	
	2038025026	5P CONNECTOR CORD	
	2038025039	5P CONNECTOR CORD	
	2032056004	COAXIAL PLUG	
	1010156202	TOP CABINET ASSY	
	1050041209	BOTTOM COVER ASSY	
	SC-1162	SPECIAL SCREW	
	1440103304	FRONT PANEL ASSY	
	1120034104	TUNING KNOB ASSY	TUNING FOR TUNING KNOB FUNCTION HEAD PHONE LEVEL, EXT. ATT. BALANCE POWER, H. BLEND, MUTING METER SELECTOR
	1140025009	KNOB RING	
	DL-7284J	FUNCTION KNOB ASSY	
	1120028107	KNOB	
	1120036005	KNOB	
	MD-5167H	LEVER KNOB (A)	
	MD-5221	LEVER KNOB (B)	

## METHOD OF ADJUSTMENTS

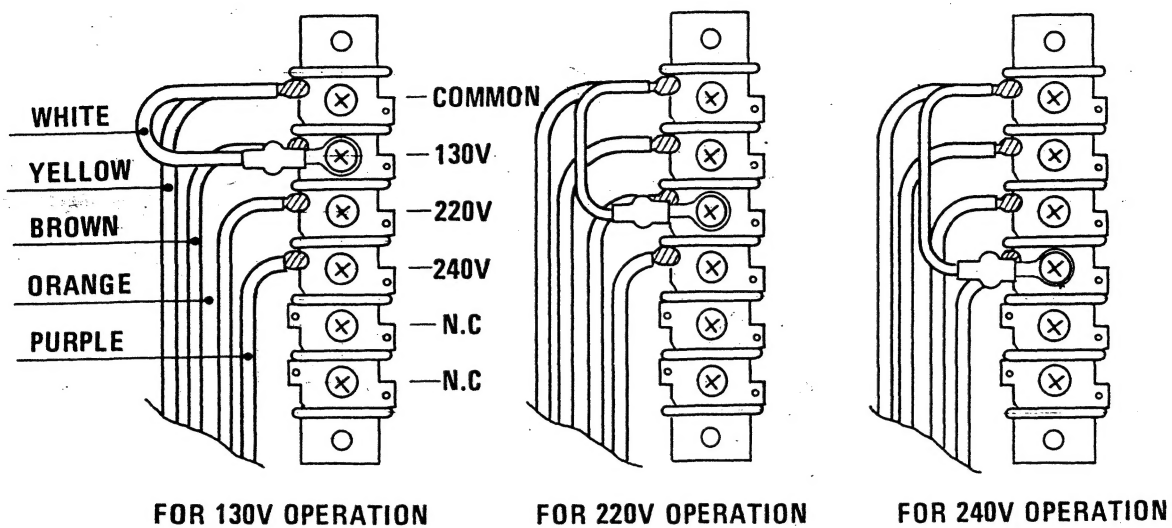
STEP	ITEM	TUNER DIAL SETTING	SIGNAL GENERATOR					INDICATOR		ADJUST	ADJUST LIMITS	REMARKS
			TYPE	FREQ	TUNER INPUT LEVEL	MODULATION	COUPLING	TYPE	CONNECTED TO			
1.	IF	98MHz	FM SG	98MHz	60dB/μV	CW	Through dummy ant. to 300 ohms ant. terminals	Signal strength meter		Top (sec.) and bottom (pri.) of T101 on front end unit. (2160009109)	Maximum signal strength meter	In following adjustments, specification of FM signal generator & stereo modulator have to warrant less than 0.1% distortion and more than 50dB stereo separation at 1 kHz.  Repeat step 3 and 4, until dial indicates within ±50kHz at 88MHz and 108MHz. Also check accuracy of other frequency reading.
2.	Detector	Point of no interference & station	Same		Received FM noise		Same	Tuning meter		Top (sec.) of T201 on IF unit (HUX-002A)	Center point of tuning meter	
3.	Dial calibration	108MHz	Same	108MHz	60dB/μV	400Hz ±75kHz deviation	Same	Same		OSC. trimmer Tc105 on front end unit (2160009109)	Same	
4.	Same	88MHz	Same	88MHz	Same	Same	Same	Same		OSC. coil L105 on front end unit (2160009109)	Same	
5.	Tracking	108MHz	Same	108MHz	Same	Same	Same	Signal strength meter		Tc, 101, 102, 103, 104 on front end unit (2160009106)	Maximum signal strength meter	
6.	Same	88MHz	Same	88MHz	Same	Same	Same	Same		L101, 102, 103, 104 on front end unit (2160009109)	Same	
7.	Monoural distortion	Same	Same	Same	Same	1000Hz ±75kHz deviation	Same	Distortion meter A.C. V.M. oscilloscope	Fixed output R-channel	Bottom (pri.) of T101 on IF unit (HUX-002A)	Minimum distortion	
8.	Audio output level	Same	Same	Same	Same	400Hz ±75kHz deviation	Same	Same	Same	VR. 201 on IF unit (HUX-002A)	I.O.V.	
9.	Same	Same	Same	Same	Same	Same	Same	Same	Fixed output L-channel	VR.303 on MPX. & Audio unit (MUA-001A)	I.O.V.	



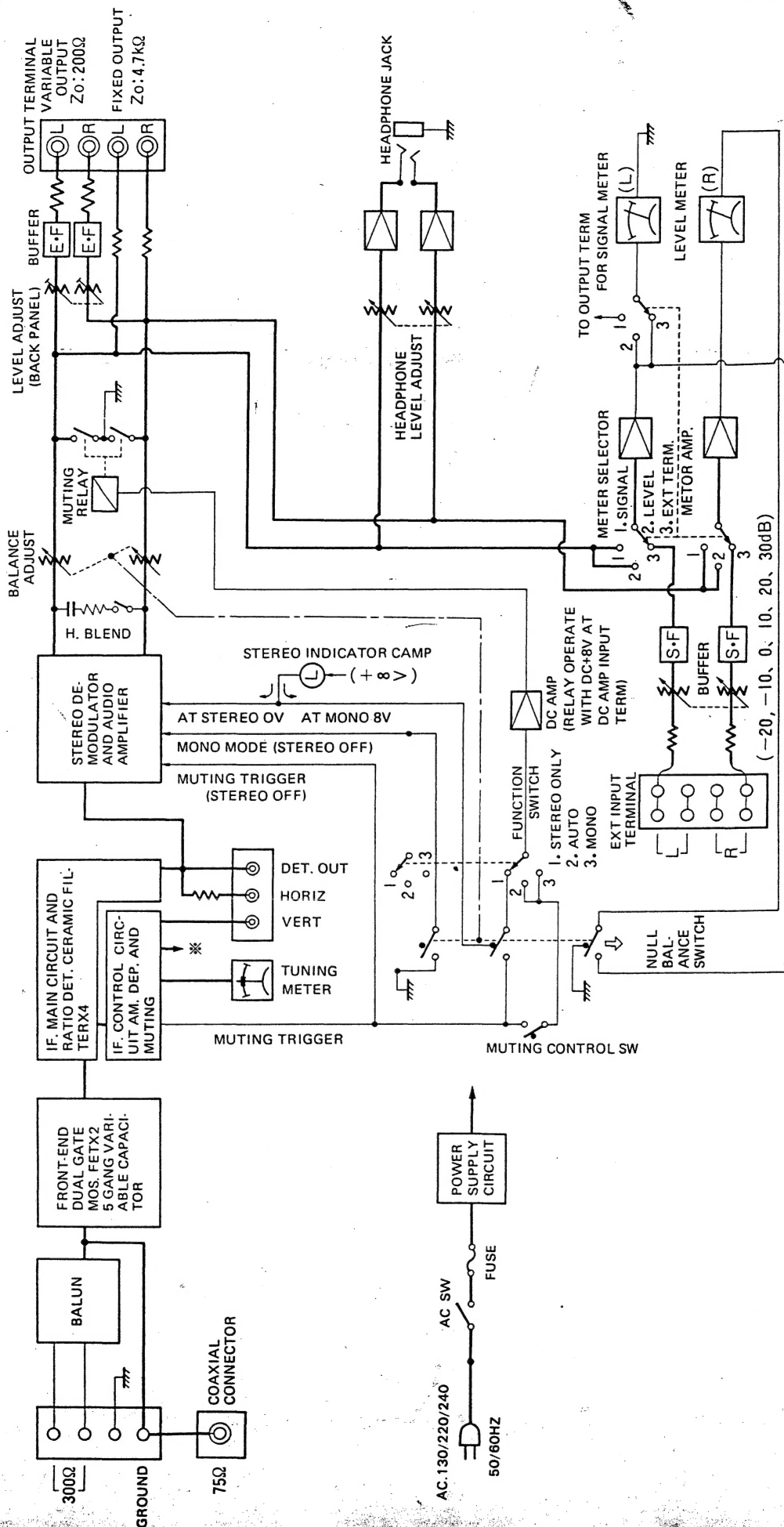
STEP	ITEM	TUNER DIAL SETTING	SIGNAL GENERATOR					INDICATOR		ADJUST	ADJUST LIMITS	REMARKS
			TYPE	FREQ	TUNER INPUT LEVEL	MODULATION	COUPLING	TYPE	CONNECTED TO			
10.	P.L.L. 19kHz	Same	Same	Same	Same	Same	Same	Frequency counter	T.P.303 TP2	VR.301 on MPX. & Audio unit (MUA-001A)	19kHz ±100Hz.	IF distortion is more than reading of 0.2%, turn top (sec.) and bottom (pri.) of T101 on front end unit (2160009109) to obtain reading of 0.15%.
11.	Stereo distortion	Same	FM SG and stereo modulator	Same	Same	Stereo modulation L-channel $\pm 33.75$ kHz deviation pilot $\pm 7.5$ kHz deviation	Same	Distortion meter A.C. V.M. oscilloscope	Fixed output L-channel	VR.204 on IF unit (HUX-002A)	Minimum distortion	
12.	Stereo separation	98MHz	FM SG. and stereo modulator	98MHz	60dB/μV	Stereo modulation L or R-channel $\pm 33.75$ kHz deviation Pilot $\pm 7.5$ kHz deviation	Through dummy ant. to 300 ohms ant. terminals	Distortion meter A.C.V.M. oscilloscope	Fixed output L or R-channel	VR.302 on MPX. and Audio Unit (MUA 001A)	Maximum separation	Check to alternate both channels
13.	Muting coil	98MHz	Same	98MHz	20dB/μV	400Hz ±75kHz deviation	Same	Signal strength meter		Top (sec.) and bottom (pri.) of T102 on IF unit (HUX-002A)	Maximum signal strength meter	Set muting switch to "ON" and VR.203 to minimum counter
14.	Muting Trigger level	Same	Same	Same	Same	Same	Same	L or R-channel level meter		VR.203 on IF unit (HUX-002A)	Trig. on audio output	clockwise position and then turn VR.203 slowly in clockwise direction until audio output is obtained.
15.	Signal strength meter	Same	Same	Same	60dB/μV.	400Hz 22.5kHz deviation	Same	Signal strength meter		VR.202 on IF unit (HUX-002A)	0dB point	Turn to obtain reading of 0dB (100%) on the signal strength meter.
16.	Level meter		Audio 1,000Hz oscillator		0.775V		L and R-channel external input terminals	L and R-channel level meter		VR.601 and VR.602 on control unit (ETC-58A)	Adjust for 0dB both channels	Set meter selector switch to "External" and external att. to 0dB position.
17.	Tuner output level setting	98MHz	FM SG.	98MHz	60dB/μV	400Hz ±75kHz deviation	Through dummy ant. to 300 ohms ant. terminals	L and R-channel level meter		VR.604, and VR.605 on control unit (ETC-58A)	Adjust for +2.3dB both channels	Set meter selector switch to "Level"

## VOLTAGE CHANGEROVER

If change of voltage is necessary, as shown in figure.



## BLOCK DIAGRAM



# DENON MODEL TU-500 FM TUNER WIRING DIAGRAM

